The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A flow control device for controlling a flow of a fluid in a channel in which the fluid is supplied to a target where a pressure is lower than a fluid supply source, comprising:

a first opening and closing valve for opening and closing the channel;

a flow control component with a flow control valve mechanism for controlling the flow of the fluid flowing through the channel;

a pressure detector capable of detecting a pressure of the fluid on a same side as the flow control valve mechanism relative to the first opening and closing valve; and

a deviation measurement/control component for calculating a deviation of the flow controlled by the flow control component from a standard level, wherein

the deviation measurement/control component

fixes an aperture of the flow control valve mechanism at a selected aperture opening and measures changes in the pressure using the pressure detector while the channel is closed by the first opening and closing valve, wherein the aperture remains fixed at the selected aperture opening during the pressure change measurement, and

calculates the deviation from the standard level associated with the selected aperture opening based on the measured changes in the pressure.

2. (Original) A flow control device in accordance with claim 1, wherein

the flow control component further comprises a flow detector capable of measuring the flow of the fluid flowing through the channel on the same side as the flow control valve mechanism relative to the first opening and closing valve, and controls the flow of the fluid flowing through the channel by adjusting the aperture of the flow control valve mechanism based on a target flow and the flow measured by the flow detector, and

the deviation measurement/control component is capable of adjusting an output level representing the flow by the flow detector based on the deviation from the standard level.

3. (Previously Presented) A flow control device in accordance with claim 2, further comprising

a second opening and closing valve for opening and closing the channel on a side opposite the first opening and closing valve relative to the flow detector, wherein

the deviation measurement/control component is capable of reading the output level representing the flow by the flow detector while the channel is closed by the first and second opening and closing valves, and adjusting an output level representing zero flow by the detector.

4. (Original) A flow control device in accordance with claim 1, further comprising

a accumulator in which the fluid flowing through the channel can be held between the first opening and closing valve and the flow control valve mechanism.

5. (Previously Presented) A flow control device in accordance with claim 1, further comprising

a temperature detector capable of measuring a temperature of the fluid on the same side as the flow control valve mechanism relative to the first opening and closing valve, wherein

the deviation measurement/control component further calculates the deviation from the standard level based on:

an initial pressure PO of the fluid at a first time in a certain time interval including a time the channel is closed by the first opening and closing valve,

an absolute temperature T1 of the fluid at a second time period in the certain time interval, and

a time period Δt from a time the pressure of the fluid reaches a certain first standard pressure P1 after the channel is closed by the first opening and closing valve until a time the pressure reaches a certain second standard pressure P2 which is different from the first standard pressure P1.

6. (Original) A flow control device in accordance with claim 5, wherein

the deviation measurement/control component calculates the deviation from the standard level based on a ratio between $PO/(T1 \times \Delta t)$ and a certain constant related to the standard level.

7. (Currently Amended) A mass flow control device comprising a flow control component which has in a channel through which a fluid flows; a flow detector for detecting a mass flow of the fluid that flows through the channel and outputting a flow signal; and a flow control valve mechanism for controlling the mass flow by altering a valve aperture by means of valve drive

signals, and controls the flow control valve mechanism based on an externally input flow set signal and the flow signal, wherein a flow control valve mechanism aperture is fixed at a selected aperture opening in response to a selected valve drive signal; and

the mass flow control device comprises a deviation measurement/control component which has in the channel; a first opening and closing valve for opening and closing the channel; a accumulator having a certain volume; and a pressure detector for detecting a pressure of the fluid and outputting a pressure detection signal, and controlling the first opening and closing valve and the accumulator and the pressure detector to perform a mass flow test operations based on the measured pressure changes measured while the valve aperture remains fixed at the selected aperture opening by the valve drive signals and a predetermined standard pressure change characteristic associated with the selected aperture opening.[[.]]

8. (Previously Presented) A mass flow control device in accordance with claim 7, wherein the deviation measurement/control component calibrates the flow detector based on a result of the test.

9. (Previously Presented) A mass flow control device in accordance with claim 7, wherein a second opening and closing valve for opening and closing an outlet side of the channel during a zero point measurement is executed is provided in the channel.

10. (Previously Presented) A mass flow control device in accordance with claim 7, wherein the first opening and closing valve, the accumulator, and the pressure detector are provided further upstream than the flow detector and the flow control valve mechanism.

11. (Withdrawn) A mass flow control device in accordance with claim 7, wherein the first opening and closing valve, the accumulator, and the pressure detector are provided further downstream than the flow detector and the flow control valve mechanism.

12. (Currently Amended) A method for adjusting a flow control device that controls a flow of a fluid in a channel in which the fluid is supplied to a target where a pressure is lower than a fluid supply source, the flow control device comprising a flow control component with a flow control valve mechanism for controlling the flow of the fluid flowing through the channel,

the adjusting method comprising the steps of:

a) fixing an aperture of the flow control valve mechanism at a selected aperture opening;

b) closing the channel using a first opening and closing valve;

c) measuring changes in a pressure of the fluid at a predetermined first position on a same side as the flow control valve mechanism relative to the first opening and closing valve after the steps a) and b), wherein the aperture remains fixed at the selected aperture opening during step c);

d) calculating a deviation of the flow controlled by the flow control component from a standard level associated with the selected aperture opening based on the measured pressure changes; and

e) adjusting the flow control component based on the deviation from the standard level.

13. (Original) A method in accordance with claim 12, wherein

the flow control component further comprises a flow detector capable of measuring the flow of the fluid flowing through the channel on the same side as the flow control valve mechanism relative to the first opening and closing valve, and controls the flow of the fluid flowing through the channel by adjusting the aperture of the flow control valve mechanism based on a target flow and the flow measured by the flow detector,

the step e) comprising the step of adjusting an output level representing the flow by the flow detector based on the deviation from the standard level.

14. (Original) A method in accordance with claim 13, further comprising the steps of:

f) closing the channel using the first opening and closing valve, and closing the channel using a second opening and closing valve on a side opposite the first opening and closing valve relative to the flow detector;

g) reading the output level representing the flow by the flow detector while the channel is closed by the first and second opening and closing valves; and

h) adjusting an output level representing zero flow by the detector.

15. (Previously Presented) A method in accordance with claim 12, wherein

the step d) further comprises the step of

calculating the deviation from the standard level based on:

an initial pressure PO of the fluid in the first position at a first time in a certain time interval including a time the channel is closed by the first opening and closing valve;

an absolute temperature T1 of the fluid in a predetermined second position on a same side as the first position relative to the first opening and closing valve at a second time in the certain time interval; and

a time period Δt from a time the pressure of the fluid reaches a first standard pressure P1 at the first position after the channel is closed by the first opening and closing valve until a time the pressure reaches a second standard pressure P2 which is different from the first standard pressure P1.

16. (Original) A method in accordance with claim 15, wherein

the step d) further comprises the step of

calculating the deviation from the standard level based on a ratio between $PO/(T1 \times \Delta t)$ and a certain constant related to the standard level.

17. (Currently Amended) A method for testing a mass flow control device, wherein

the mass flow control device comprises:

a flow control component which has in a channel through which a fluid flows; a flow detector for detecting a mass flow of a fluid that flows through the channel and outputting a flow signal; and a flow control valve mechanism for controlling the mass flow by altering a valve aperture by means of valve drive signals, and controls the flow control valve mechanism based on an externally input flow set signal and the flow signal; and

a deviation measurement/control component which has in the channel; a first opening and closing valve for opening and closing the channel; a accumulator having a certain volume; and a pressure detector for detecting a pressure of the fluid and outputting a pressure detection signal, and controls the first opening and closing valve and the accumulator and the pressure detector to perform a mass flow test operation, and

the testing method comprises the steps of:

setting a verification flow by fixing an aperture of the flow control valve mechanism at a selected aperture opening;

ensuring a stable flow of a fluid for the test in the channel;

detecting a pressure of the flowing fluid and a temperature of the accumulator to determine an initial pressure and an initial temperature respectively;

closing the channel using the first opening and closing valve;

measuring changes in a pressure of a fluid flowing from the accumulator after the closure of the channel while the aperture of the flow control valve remains fixed at the selected aperture opening; and

determining a test result based on the measured pressure changes and a predetermined standard pressure change characteristic associated with the selected aperture opening.

18. (Previously Presented) A method for testing a mass flow control device in accordance with claim 17, further comprising calibrating the flow detector automatically based on the test results.

19. (Previously Presented) A method for testing a mass flow control device in accordance with claim 17, further comprising altering the verification flow in various amounts by selecting another aperture opening.

20. (Previously Presented) A method for testing a mass flow control device in accordance with claim 17, further comprising, before the step for setting the verification flow, measuring a zero point by blocking the flow of the fluid flowing in the channel.